

Response under 37 C.F.R. §1.111
Attorney Docket No. 032044
Serial No. 10/698,934

REMARKS

Claims 1-10 are pending in the present application and are rejected. Claim 4 is herein amended.

Applicants' Response to Claim Rejections under 35 U.S.C. § 112, second paragraph

Claim 4 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention, due to the phrase “or a derivative thereof.” In order to overcome this rejection, Applicants have amended claim 4 in order to eliminate this language. Favorable reconsideration is respectfully requested.

Applicants' Response to Claim Rejections under 35 U.S.C. § 103

Claims 1-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over **Fujihira et al (US 2002/0128344)** in view of **Hird et al. (USP 5,759,569)**, **Gaglani et al. (USP 6,353,021)** and **Ohsawa et al. (USP 6,207,235)**.

The Office Action asserts that it would have been obvious to incorporate the ultraviolet stabilizers from any of **Hird**, **Gaglani**, or **Ohsawa** in the composition of **Fujihira** to stabilize the molded product against degradation by ultraviolet light, thereby imparting stability of color and mechanical properties. The Office Action notes that **Fujihira** is silent about compound (C) of claim 1, which is a Markush group of ultraviolet stabilizers. The Office Action uses **Hird** to illustrate the general concept of using an adjuvant which is an ultraviolet stabilizer.

The present invention is characterized in that specified amounts of a carbodiimide compound and a specified compound are used in combination with a biodegradable plastic (in

particular, an aliphatic polyester), so that the resulting biodegradable plastic composition exhibits improved resistance to hydrolysis and weather. Such a combination and unexpected effects thereof are not obvious in light of the references cited. Applicants respectfully submit that **Hird** does not disclose any of the specific members of the Markush group in claim 1. Furthermore, neither **Gaglani** nor **Ohsawa** appear to disclose the use of hydroxylamine-based compounds, the third member of the Markush group of claim 1.

Accordingly, Applicants respectfully argue that the Office Action improperly combined the cited references. As stated in the Office Action on page 3, “**Fujihira** is silent about compound (C) of instant claim 1.” Indeed, **Fujihira** contains no disclosure of benzotriazole-, triazine- or hydroxylamine-based compounds, or ultraviolet stabilizers generally. According to the specification of the present invention, one of these compounds in conjunction with the carbodiimide compound improves hydrolysis resistance. See page 5, line 19 to page 6, line 2 of the specification.

Fujihira does not suggest a need for another compound in addition to carbodiimide to improve hydrolysis resistance. Paragraph 22 of **Fujihira** discloses:

It is preferred that the method for improving elastic modulus of the present invention is applied to a biodegradable resin material which contains an additive for suppressing hydrolysis, and, as the additive a carbodiimide compound is preferred.

There is no suggestion or motivation in **Fujihira** to include an additional compound of any kind to improve hydrolysis resistance. Applicants respectfully submit that the combination of references cited by the Office Action was the result of “impermissible hindsight.” According to MPEP § 2143.01, there must be a suggestion in the prior art as to the desirability of the combination in order for *prima facie* obviousness to be established.

Furthermore, Applicants submit that the present application contains “unexpected results” based on the data in the specification. Tables 1-3 summarize the benefits of the synergistic effects of the combination of biodegradable plastic, carbodiimide, and one of the compounds referred to in part (C) of claim 1. These data disclose a greater weather and hydrolysis resistance for the examples containing all three elements than for the comparative examples. In other words, even if the references could be combined, there is no suggestion that the specific combination provides for the benefits disclosed in the specification.

In **Hird**, biodegradable articles are made out of a composition comprising polymers and optional adjuvants such as an ultraviolet stabilizer. However, in column 10 of **Hird**, although the use of a hindered amine light stabilizer such as Tinuvin 765 is disclosed, there is no disclosure with respect to the compound corresponding to component (C) in the present invention. **Hird** also states that: “Surprisingly, it has been found that the inclusion of these antioxidants can in some cases promote the biodegradability of the polymers.” Column 10, lines 30-32.

In **Gaglani**, various ultraviolet stabilizers such as benzophenones and benzotriazoles are disclosed. However, **Gaglani** is based on a synergistic effect from a combination of an ultraviolet absorber and organic peroxide on the stabilization of halopropynyl compounds against light-induced or heat-induced degradation and discoloration. This effect is simply an improvement on the normal function of the combination of ultraviolet absorbers such as benzophenones and benzotriazoles and organic peroxide, and thus is not relevant to the biodegradable plastic composition of the present invention.

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Ohsawa discloses a composition in which a triazine ultraviolet absorber is used. However, the invention of **Ohsawa** is directed at a one-pack coating obtained by incorporating a specific ultraviolet absorber and a specific light stabilizer or antioxidant into a coating composition. Although the coating composition has improved storability, excellent weather resistance, and is free from unnecessary coloration, it is not relevant to the biodegradable plastic composition of the present invention.

Applicants therefore respectfully traverse the rejection on the grounds that the combination of references cited in the Office Action was improper due to a lack of a motivation or suggestion to add an additional benzotriazole-, triazine- or hydroxylamine-based compound in **Fujihira**, irrelevance of **Ohsawa**, **Hird** and **Gaglani**, as well as the unexpected results of the claimed invention.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone Applicants' undersigned attorney.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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